**Lesson Plan – Science Analucia Nascimento**

**6th grade**

**Concepts**

1. Energy conservation can be defined as the protection ,preservation, management, or restoration of our energy resources.

2. Conservation is one of the ways we can reduce energy use, thus reducing the amount of pollutants put into our atmosphere from the burning of fossil fuels and reducing the negative effects felt from the burning of these fuels.

3. Conservation methods include modifications to our daily behaviors and choosing energy conscious products.

**Key Questions**

1. What appliances use the most energy in the average home?
2. 2. What are some ways you can conserve energy in your home?
3. 3. What are some examples of energy conscious products?

**Key Terms**

Conservation

Energy Audit

Compact Fluorescent Light bulb (CFL)

Incandescent bulb

Life cycle analysis

Watt

Leaking Electricity

Light emitting diode (LED)

**Teaching Plan:**

Some background: Most of the energy used in the U.S. comes from burning fossil fuels

About 1/5 (20%) of all the energy used in the U.S. is used in our homes, and of that energy, about 15 percent is in the form of electricity. In the U.S., about half of our electricity is generated by burning coal (in New York State much of our electricity comes from large hydropower plants).

We can reduce our consumption of fossil fuels by making different choices about the appliances and equipment we use in our homes. In order to make effective choices, we need to know how much electricity is used by the different appliances found in our households.

Different appliances in our houses use different amounts of electricity. The biggest electricity consumers are often equipment that operates automatically, like air conditioners, water heaters, refrigerators and freezers. Sometimes buying newer, energy efficient equipment is our only option for saving energy used by these appliances, and often the energy saved offsets the cost of the new appliance.

ACTiVITY

Introduce the Home Energy Audit Activity

*Students can use pictures of a model home to find appliances for the audit. Model home pictures are provided. Also students can see www.energystar.gov for appliances in a model house.*

In this activity, we will do an energy audit of a house. An energy audit is, according to the dictionary.com website, an evaluation of energy consumption, as in a home or business, to determine ways in which energy can be conserved.” We will look at some electrical appliances and determine the amount of energy they use. This will help us discover which appliances use large amounts of electricity and which ones do not. We will look at appliances that we have control over, like lighting, TV, toaster, washing machine, as opposed to things we don’t have control over like refrigerators and water heaters.

You will choose one area of your house to focus your audit – for example, the kitchen, the laundry room, the bathroom, your computer, stereo and tv system, your lighting, and so on.

Everyone will bring in the results from their audits, and we will compare the electricity used by different appliances.

This will help you determine what kind of home electric energy savings are possible, and where you can make most effective choices for saving electricity in your homes.

Complete Home Energy Audit Activity (begin the activity in class with an example. Students may finish the rest as homework)

Have the students read the activity instructions in (Activity: Home Energy Audit).

If students are using the model home, distribute pictures and have students choose one room to audit.

If computer access is available, students using the model home approach can access a different model home at www.energystar.gov, see “launch energystar@home”), which is an interactive program that also contains options and tips for saving energy within the home.

Discuss the instructions and make sure everyone understands what to do.

Have the students break into small groups and do one of the examples

provided.

Go through each step of the instructions with the students to make sure they

understand

what to do for each row. o When going over the steps of the example, carefully explain the difference between Watts, which is the power used by the appliance (rate of energy use), recorded in row 2, and Watt- hours, row 9 (or kilowatt-hours kW-h, row 12), which is the total energy used by the appliance. It is important for students to understand that when we pay our electric bill, we pay for the energy we use, in kW-hrs. Thus, to save on our electric bill, we can use appliances that have lower Watt ratings, or we can use our high-wattage appliances for shorter amounts of time.

Have the students decide which appliances they will focus their audit on, making sure that there is a variety done by the class.

Students may finish the activity for homework.

Discuss the Activity Share the results of the students’ audits – make a chart on the board, for example. Compare the different electricity/energy uses of the different appliances. For comparison purposes, add the energy use of large appliances such as refrigerator, water heater, air conditioner,from the resource tables.

Reflection

What did you learn about energy conservation from this activity?

Are there places in the house where there seems to be more

energy lost than effectively used?

If you could make one change to save electricity in your house,

what would it be?

Is leaking electricity important in your overall energy

consumption? What could be done to reduce the leaky electricity?

Standards

Integrating Knowledge and Ideas

6RI.7 Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.

Danielson’s Framework

Instruction

3c Engaging Students in Learning

